

reducing agent is substantially prevented from contacting said oxidation catalyst, whereby said oxidation catalyst primarily catalyzes said oxidation of said NO to NO₂ as compared to said oxidation of said reducing agent during the catalytic conversion of said exhaust gases.

40. The porous material of claim 39 wherein said carrier includes a second porous structure, and including a reduction catalyst capable of selectively catalyzing the reduction of NO to N₂ in the presence of a reducing agent, said reduction catalyst disposed in said second porous structure, said second porous structure including pores having a dimension such that said reducing agent can contact said reduction catalyst, whereby said reduction catalyst can catalyze said reduction of NO₂ to N₂ in the presence of said reducing agent.

41. The porous material of claim 40 wherein said pores of said first porous structure are generally smaller than said pores of said second porous structure.

42. The porous material of claim 41 wherein said pores of said first porous structure have an effective size of from about 3-6 angstroms.

43. The porous material of claim 40 wherein said first and second porous structures are provided in the same layer or coating of said porous material.

44. The porous material of claim 40 wherein said first and second porous structures are provided in different layers or coatings of said porous material.

45. The porous material of claim 40 wherein said carrier including said second porous structure has been adapted to the molecular size or absorption properties of said reducing agent.

46. The porous material of claim 40 wherein the ratio of said oxidation catalyst to said reduction catalyst is

optimized, whereby said oxidation of NO to NO₂ substantially corresponds to said reduction of NO₂ to N₂.

47. The porous material of claim 40 comprising a first portion of said porous material disposed to initially receive said exhaust gas and a second portion of said porous material disposed to subsequently receive said exhaust gas, and wherein said first portion of said porous material includes more of said oxidation catalyst than said reduction catalyst and said second portion of said porous material includes more of said reduction catalyst than said oxidation catalyst.

48. The porous material of claim 40 wherein at least one of said first and second porous structures is disposed in said carrier comprising a zeolite crystal structure.

49. The porous material of claim 48 wherein said first porous structure is disposed in a carrier comprising a first zeolite and said second porous structure is disposed in a carrier comprising a second zeolite.

50. The porous material of claim 49 comprising a physical mixture of said first and second zeolites.

51. The porous material of claim 49 comprising a layered structure comprising layers of said first and second zeolites.

52. The porous material of claim 51 wherein said layers of said first and second zeolites are arranged so that said second zeolite structure will contact said exhaust gases before said first zeolite structure.

53. The porous material of claim 49 wherein said second zeolite is applied by overgrowth onto said first zeolite.

54. The porous material of claim 49 wherein the content of said oxidation catalyst in the outer layers of said first zeolite has been reduced by means of regulating the penetration depth or dispersion thereof.

55. The porous material of claim 49 including an additional crystal zeolite layer crystallized onto said first zeolite, said additional crystal zeolite layer including a reduced content of said oxidation catalyst.

56. The porous material of claim 49 wherein said first zeolite comprises crystal grains having optimized crystal grain sizes and shapes, whereby access of said reducing agent thereto is reduced and the effective oxidation of said NO to NO₂ is carried out.

57. The porous material of claim 49 wherein said first zeolite is selected from the group consisting of Ferrierite and Chabazite.

58. The porous material of claim 40 wherein said reducing agent comprises a hydrocarbon or a hydrocarbon including oxygen or sulfur.

59. The porous material of claim 40 wherein said reduction catalyst comprises an acidic zeolite catalyst.

60. The porous material of claim 40 wherein said reduction catalyst comprises a Brönstedt acid catalyst.

61. The porous material of claim 60 wherein said Brönstedt acid catalyst is selected from the group consisting of silver, copper, Rhodium, Indium, Iridium and combinations thereof.

62. The porous material of claim 39 wherein said oxidation catalyst is selected from the group consisting of platinum, palladium and mixtures thereof.

63. The porous material of claim 40 including a substrate, wherein at least one of said first and second porous structures are provided on said carrier attached to said substrate.

64. A method for the catalytic conversion of exhaust gases comprising oxidation of NO to NO₂ over an oxidation catalyst capable of oxidizing said NO to NO₂ in the presence of

oxygen and of oxidizing a reducing agent, and sterically preventing said reducing agent from contacting said oxidation catalyst, whereby said oxidation catalyst primarily catalyzes said NO to NO₂ as compared to oxidation of said reducing agent.

65. The method of claim 64 including reduction of NO to N₂ over a reduction catalyst capable of reducing said NO₂ to N₂ in the presence of said reducing agent whereby said reducing agent is at least partially consumed in order to provide a catalytically converted exhaust gas having a reduced content of NO, NO₂ and said reducing agent, and a proportionately reduced amount of N₂O and CO.

66. The method of claim 64 including adding an additional amount of said reducing agent prior to said reduction over said reduction catalyst.

67. The method of claim 66 including determining the content of said reducing agent or the amount of said NO in said exhaust gases and providing said additional amount of said reducing agent based thereon.

68. The method of claim 67 including determining the status of said catalytic conversion based on said determined amount of said reducing agent or said NO.

69. The method of claim 68 wherein said determining of said status of said catalytic conversion is carried out in a diagnostic control system.

70. The method of claim 64 including initially passing said exhaust gases through a device for storing and releasing nitrous oxides prior to said oxidation over said oxidation catalyst.

71. The method of claim 64 including initially passing said exhaust gases through a device for storing and releasing said reducing agent prior to said oxidation over said oxidation catalyst.

72. The method of claim 65 including regulating the temperature of said exhaust gases in order to ensure that said temperature is within the active temperature interval of said oxidation catalyst and said reduction catalyst.

73. The method of claim 65 including passing said at least partially catalytically converted exhaust gases over a second oxidation catalyst, whereby oxidation of residues of said reducing agent and CO can occur.

74. The method of claim 65 wherein said exhaust gases arise from an internal combustion engine, and wherein said reducing agent comprises a hydrocarbon or a hydrocarbon containing oxygen or sulfur.

75. The method of claim 74 including regulating the fuel consumption of said internal combustion engine in order to regulate the composition of said exhaust gases and to regulate the residue of nitrous oxides in said catalytically converted exhaust gases.

76. The method of claim 74 wherein said internal combustion engine comprises a diesel engine and wherein said reducing agent originates from internal combustion in said diesel engine.

77. The method of claim 76 including adding an additional amount of said reducing agent by means of a fuel injector for said diesel engine or by an injector for said additional reducing agent.

REMARKS

The above-noted cancellation of claims 1-38, and substitution of new claims 39-77, as well as the substitution of a revised Abstract and Specification, are respectfully submitted prior to initiation of the prosecution of this application in the U.S. Patent and Trademark Office.

The above-noted amendments to the claims are respectfully submitted in order to more clearly and appropriately